Arboviral Disease

Provider Information Sheet

What arboviruses (mosquito-borne viruses) may occur in West Virginia?

Four major arboviruses occur in the Eastern United States:

- Eastern equine encephalitis (EEE),
- La Crosse encephalitis (LAC),
- St. Louis encephalitis (SLE), and
- West Nile virus (WNV).

Our state reports 15 to 50 LAC and 0-3 WNV cases per year. Virtually all counties in West Virginia have found birds that are positive for WNV, and EEE has also rarely been found in birds. No human cases of SLE or EEE have recently been identified in our state, but both these infections occur in surrounding states. SLE has been identified in West Virginia in the past.

What are the signs and symptoms of arboviral infection?

The hallmark of arboviral illness is acute onset of fever plus neurological signs and symptoms during mosquito season (June to October). Hospitalized patients with encephalitis should always be considered for arbovirus testing during mosquito season.

Mild illness is characterized by fever and headache. Vomiting, arthritis, rash or lymphadenopathy have also been reported with this milder syndrome, especially in persons with WNV.

Other syndromes that have been associated with arboviral infection include:

- Parkinsonism and other movement disorders
- Tremors
- Acute flaccid paralysis
- Neuritis
- Aseptic meningitis

Encephalitis may be very severe and result in altered mental status, seizures, coma and death. EEE is by far the most serious arboviral infection with a case-fatality rate estimated at 36%. Mortality among hospitalized persons is estimated at 3-30% for SLE; 12% for WNV: and 1% for LAC. WNV and SLE primarily affect the elderly whereas symptomatic LAC disease is most common in children under age 15.

Survivors of arboviral encephalitis may have long-term neurological deficits. Three to 12% of hospitalized children with LAC have some residual neurological or cognitive abnormality

Infectious Disease Epidemiology
350 Capitol St, Room 125, Charleston WV 25301-3715
Phone: 304.558.5358 • Fax: 304.558.6335 •
www.wvidep.org

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after recovery. Up to 50% of hospitalized WNV patients continue to have symptoms at one year. Thirty-five percent of surviving EEE patients have neurological sequelae.

How can I make the diagnosis?

Diagnosis is confirmed only by the presence of clinical illness and:

- a four-fold rise in serum antibody, OR
- virus-specific immunoglobulin M (IgM) in serum or CSF, OR
- isolation of virus or detection of viral antigen in blood, CSF, or brain tissue.

Since the arboviral encephalitides are clinically indistinguishable, providers should insist that their patients are tested for EEE, LAC, SLE and WNV and that all positive tests are confirmed at the Office of Laboratory Services (OLS: 304-558-3530). Of course, rule out other treatable conditions such as partially treated meningitis or herpes simplex encephalitis. Aseptic meningitis due to enterovirus is also extremely common in the late summer / early fall.

Suspected or confirmed cases are required to be reported to the local health department so that an environmental investigation can be performed. The primary purpose of the investigation is to identify potential breeding sites for disease-carrying mosquitoes and recommend action to abate these sites.

Where can I get laboratory testing for my patients?

Testing of serum or CSF is available free of charge through the Office of Laboratory Services (OLS) at WVDHHR. Call 304-558-3530 to arrange.

OLS will routinely perform serological testing for LAC, WNV, SLE and EEE.

Websites

http://www.cdc.gov/ncidod/dvbid/arbor/index.htm
http://www.wvidep.org/AZIndexofInfectiousDiseases/EncephalitisArboviral/tabid/1500/Default.aspx

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